

Apr 77

BOURNS PANEL POTENTIOMETERS



BOURNS® Model 81/82 MODULAR potentiometer combines the design versatility of advanced modular construction with factory assembled reliability and quality assurance. The net result is a consistently high quality $\frac{5}{8}$ " square panel potentiometer that can be delivered in single or multiple section configurations to suit your specific application . . . from off-the-shelf components . . . at low cost.

The Model 81/82's unique shaft torque control feature provides a smooth, high quality feel that will enhance the "human engineering appeal" of your equipment. This feature enables Bourns to produce a panel potentiometer that has a remarkably consistent feel (torque range only .3 to 2.0 oz.-in.) from unit-to-unit . . . regardless of the number of modules ganged on a single shaft.

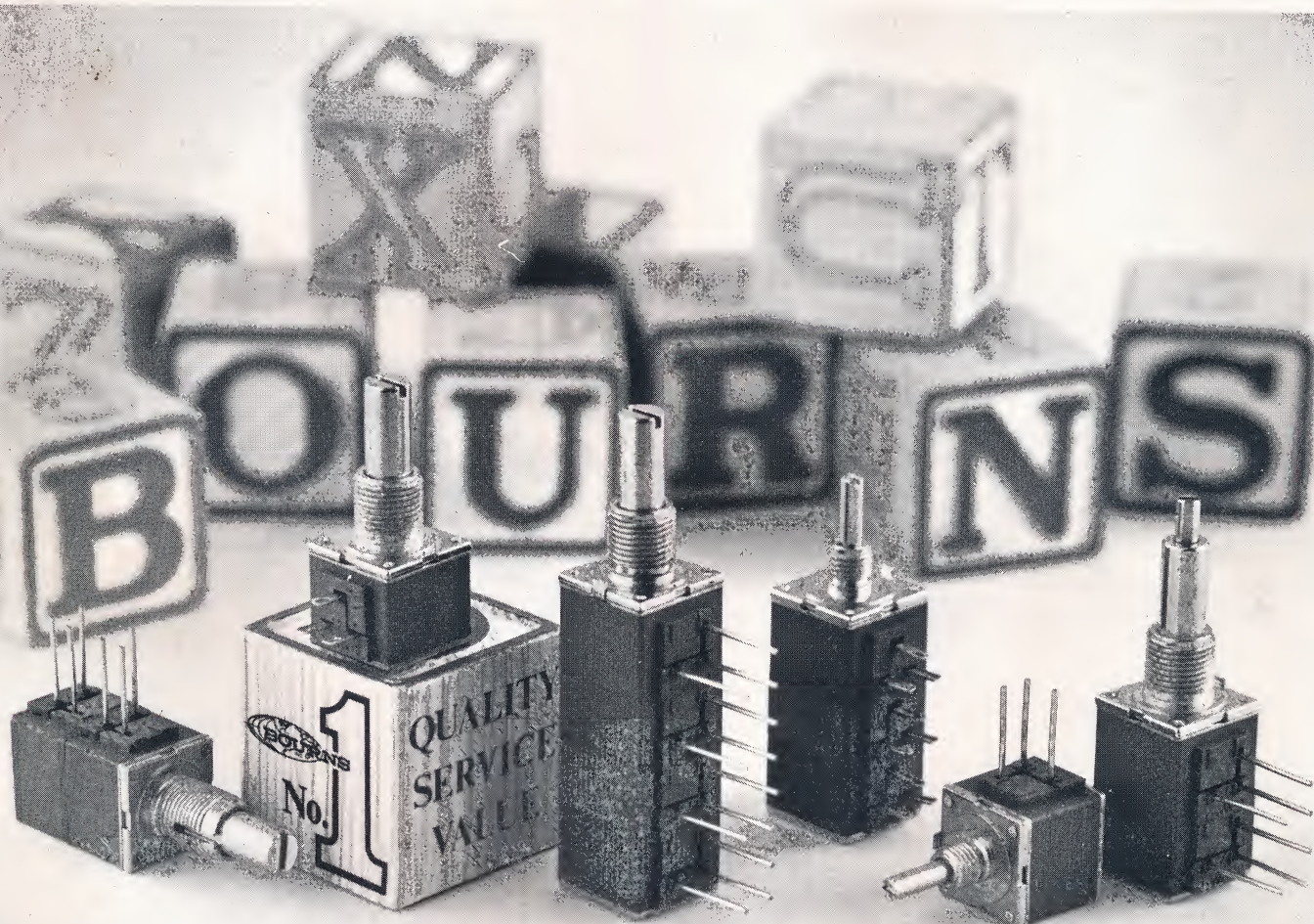
MODEL 81/82

MODULAR POTENTIOMETER

SINGLE OR MULTIPLE $\frac{5}{8}$ " SQUARE SECTIONS

BUSHING MOUNT

CERMET AND/OR CONDUCTIVE PLASTIC ELEMENTS



BOURNS INTRODUCES THE *ADVANCED* MODULAR POTENTIOMETER

DESIGN YOUR OWN PANEL POTENTIOMETER FROM OFF-THE-SHELF COMPONENTS

Bourns advanced modular design consists of a number of mass produced basic "building blocks" that can be specified by you to suit your specific application. Bourns then employs high-volume assembly techniques — under strict factory quality assurance control — to fill your particular building block prescription. Simple as A, B, C.

ADVANCED MODULAR FEATURES

- Bourns unique torque control feature eliminates the bothersome torque buildup frequently experienced in multiple section potentiometers. Regardless of the number of sections ganged into one Model 81/82, the adjusting shaft turns smoothly and effortlessly . . . facilitating easier and more accurate operator settings.
- Cermet and conductive plastic elements are available in *all* tapers, as well as standard linear taper. Element types can be mixed in multiple section configurations. Bourns modular potentiometers are super cost effective.

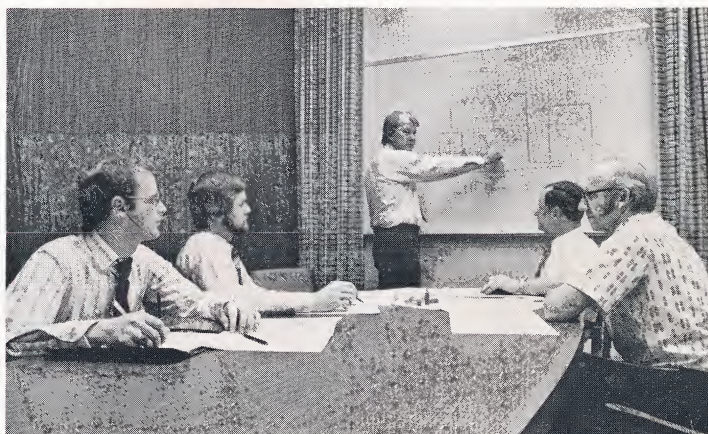
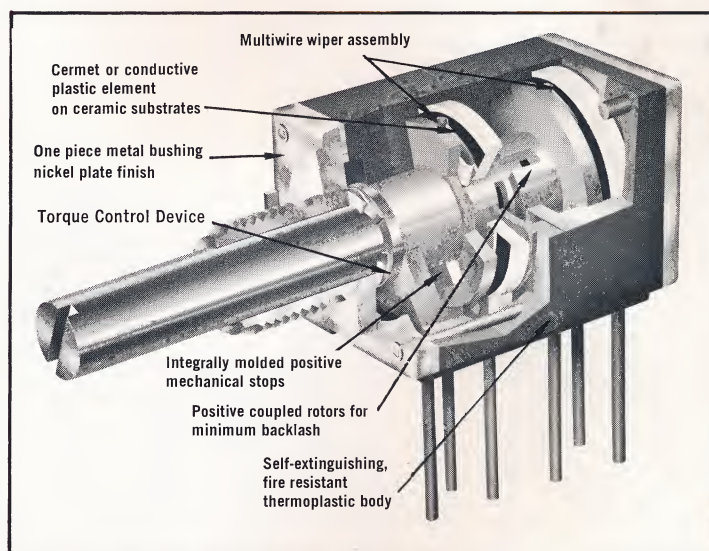
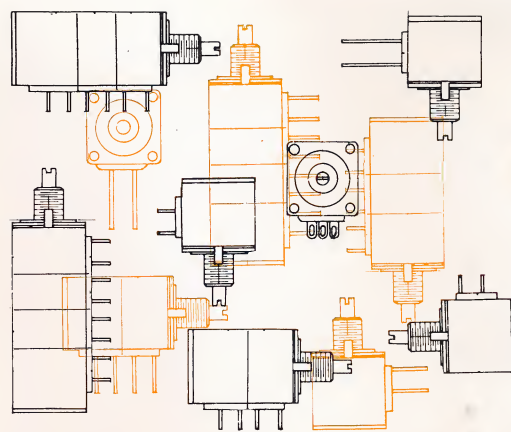
FULL FACTORY ASSEMBLY AND QUALITY ASSURANCE . . . PLUS MASS PRODUCTION DELIVERABILITY

All Model 81/82 Modular potentiometers are factory assembled by full-time production personnel under the supervision and control of the industry's most respected quality assurance organization. High-volume assembly techniques, plus mass-produced modular components stock means fast delivery . . . at competitive prices . . . of a quality Bourns product.

SPECIAL APPLICATION ENGINEERING ASSISTANCE

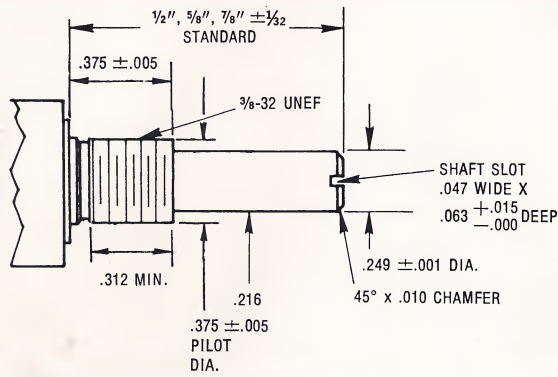
Bourns maintains a team of panel potentiometer application specialists to assist you with any design or circuit application requirement. Give us a call . . . even if it's just a "little problem". Dial 714-781-5122 and ask for a PANEL POWER ENGINEER.

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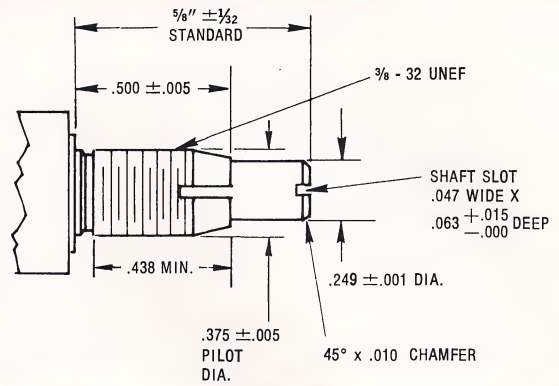


MODEL 81/82 MECHANICAL DIMENSIONS

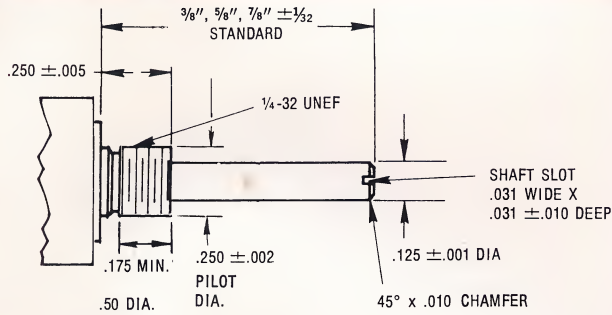
"A" BUSHING — 3/8" DIA. PLAIN — SINGLE SHAFT



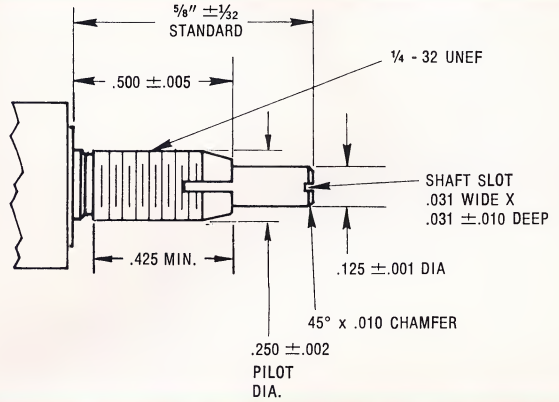
"B" BUSHING — 3/8" DIA. LOCKING — SINGLE SHAFT



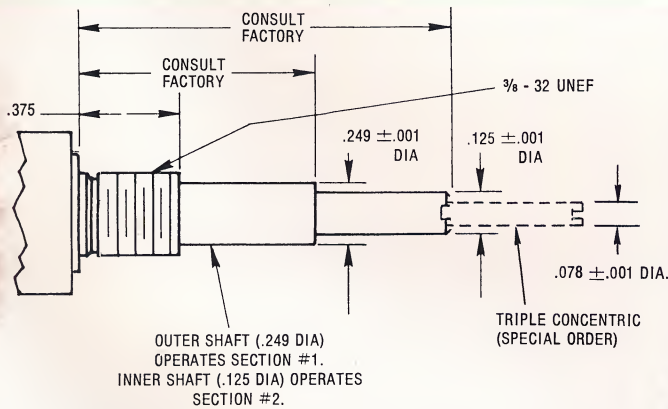
"C" BUSHING — 1/4" DIA. PLAIN — SINGLE SHAFT



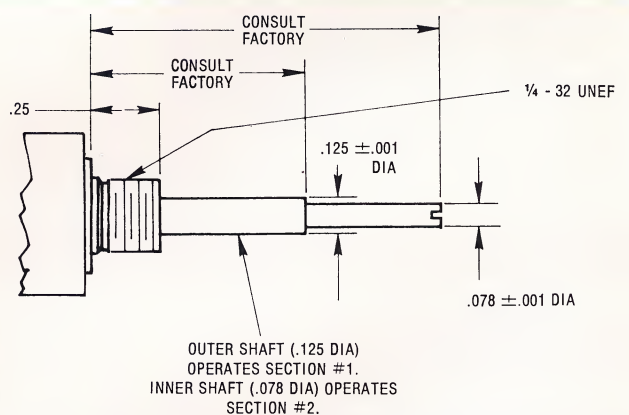
"E" BUSHING — 1/4" DIA. LOCKING — SINGLE SHAFT



"A" BUSHING — 3/8" DIA. PLAIN — CONCENTRIC SHAFT

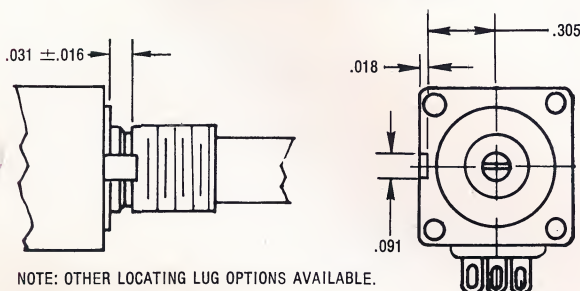


"C" BUSHING — 1/4" DIA. PLAIN — CONCENTRIC SHAFT

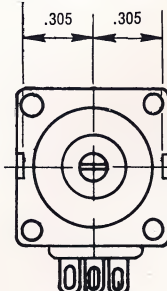


LOCATING LUG OPTIONS

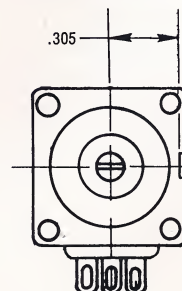
A — SGL. .305R. 90° CW (STD.)



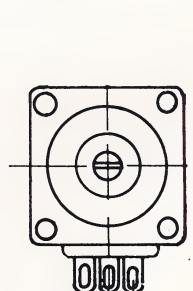
B — DBL. .305R.



C — SGL. .305R. 270° CW.



D — NO LUG

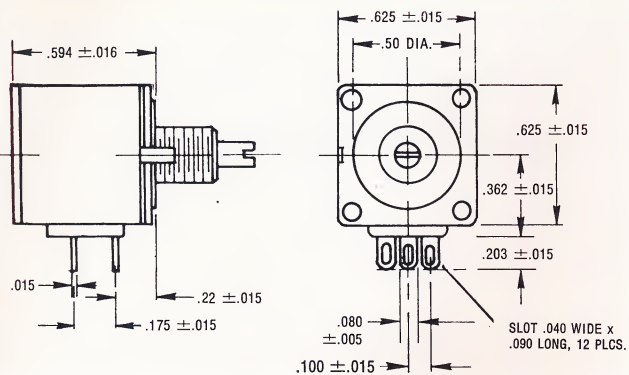


NOTE: OTHER LOCATING LUG OPTIONS AVAILABLE.
FOR DETAILS CONTACT FACTORY

MECHANICAL DIMENSIONS SINGLE TURN POTENTIOMETERS WITH 1-4 SECTIONS

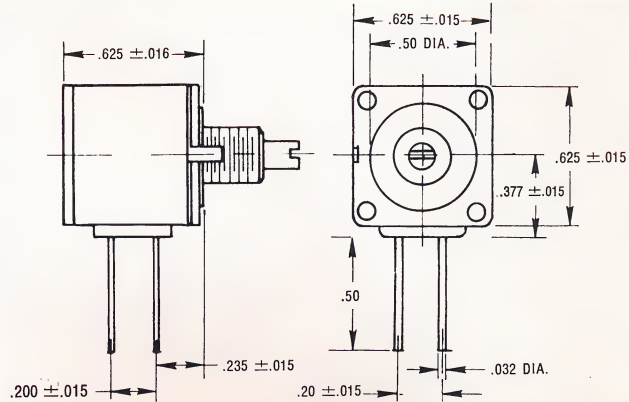
SINGLE UNIT — LUGS

MODEL 82

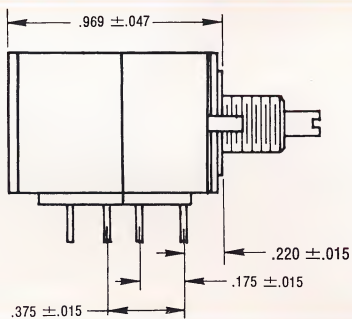


SINGLE UNIT — PC PINS

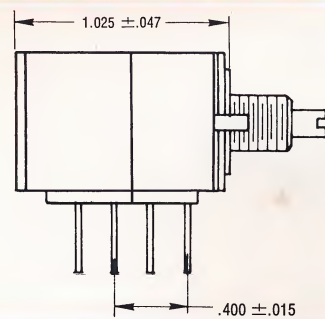
MODEL 81



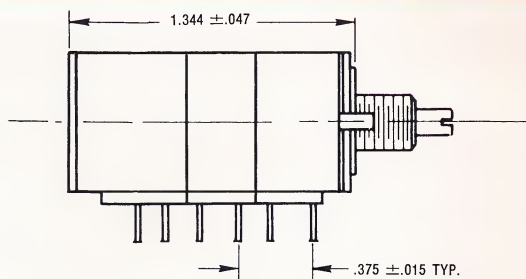
DUAL UNIT — LUGS



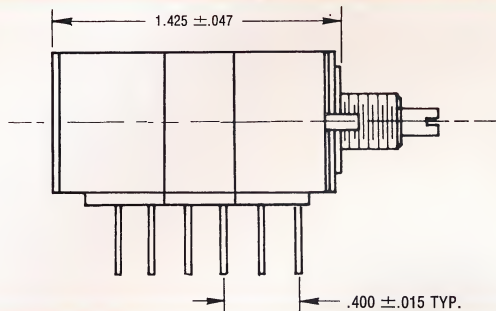
DUAL UNIT — PC PINS



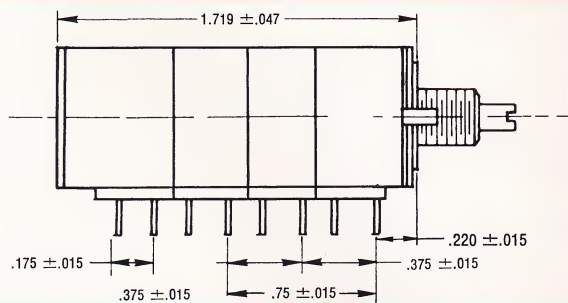
TRIPLE UNIT — LUGS



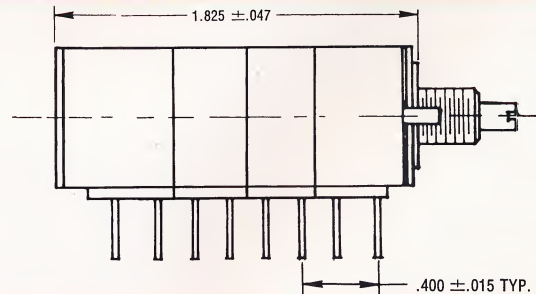
TRIPLE UNIT — PC PINS



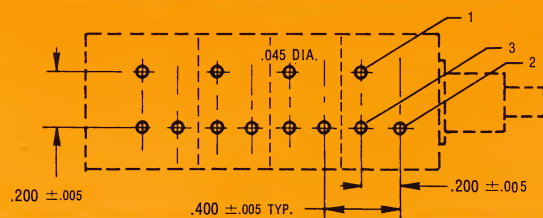
QUAD UNIT — LUGS



QUAD UNIT — PC PINS



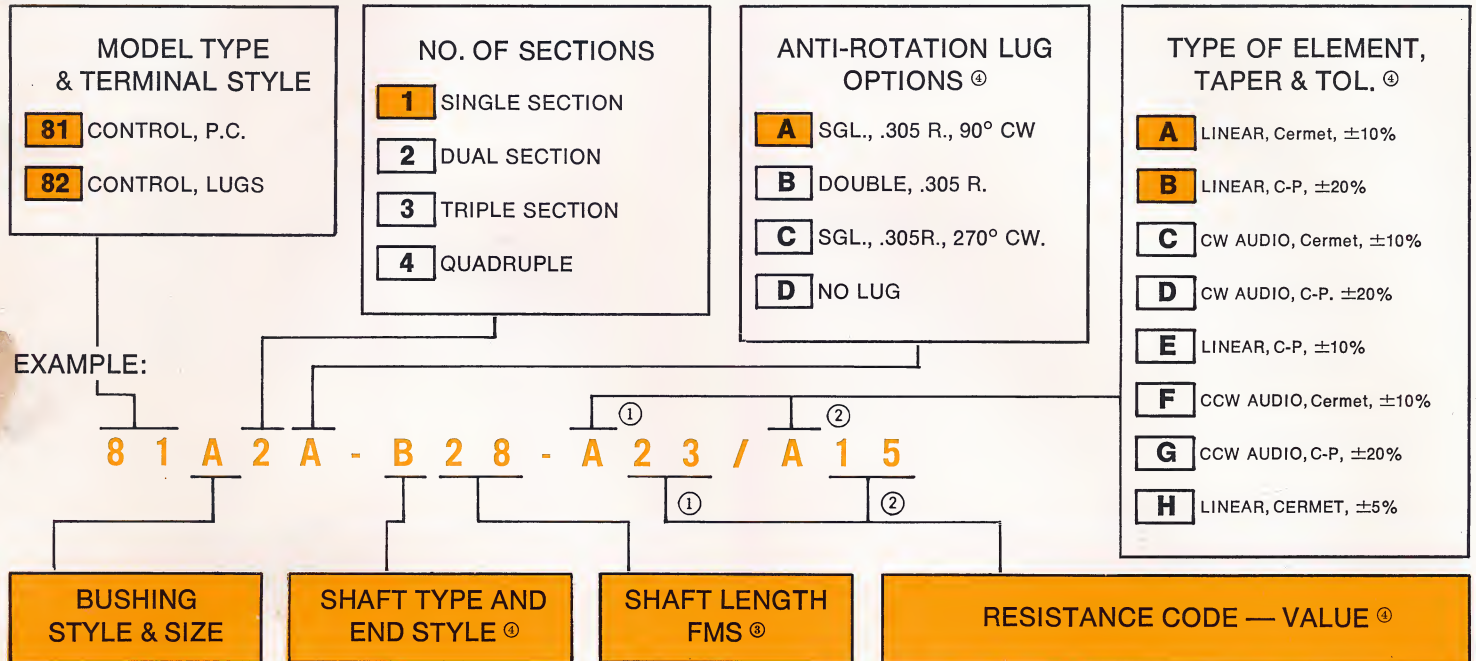
SUGGESTED PC BOARD LAYOUT — PC PINS



(BOTTOM VIEW — SINGLE SHAFT UNIT)
CONCENTRIC SHAFT — ADD .100
SPACER BETWEEN INNER AND
OUTER SHAFT MODULES

MODEL 81/82 PART NUMBERING SYSTEM

Features indicated by shaded areas are production standards and normally available for fast delivery. Unshaded areas are available on special order and are not normally stocked.



A	Plain 3/8" D. x 3/8" L.	B Single, Slotted	16 1/4" D.
			20
			28
		G Dual Concentric, Slotted End	SEE NOTE 3 1/4" D. Outer 1/8" D. Inner
B	Locking 3/8" D. x 1/2" L.	B Single, Slotted	20 1/4" D.
C	Plain 1/4" D. x 1/4" L.	E Single, Slotted	12 1/8" D.
			20
			28
		K Dual Concentric, Slotted End	SEE NOTE 3 1/8" D. Outer 5/64" D. Inner
E	Locking 1/4" D. x 1/2" L.	E Single, Slotted	20 1/8" D.

* 03 — 50	13 — 5K	23 — 500K
* 05 — 100	15 — 10K	25 — 1 Meg
07 — 250	17 — 25K	26 — 2.5 Meg
08 — 500	18 — 50K	27 — 5 Meg
10 — 1K	20 — 100K	
12 — 2.5K	22 — 250K	

* Available in Cermet only

MOUNTING HARDWARE

PART NO. AND DESCRIPTION	BUSHING STYLE			
	A	B	C	E
H-36-1 FLAT WASHER			X	X
H-36-2 FLAT WASHER	X	X		
H-37-1 LOCKWASHER			X	X
H-37-2 LOCKWASHER	X	X		
H-38-1 MOUNTING NUT			X	X
H-38-2 MOUNTING NUT	X	X		
H-38-3 LOCKNUT				X
H-38-4 LOCKNUT		X		

NOTE: Hardware indicated by shaded areas is normally supplied with unit. Other hardware may be ordered separately. Hardware bulk packaged with units.

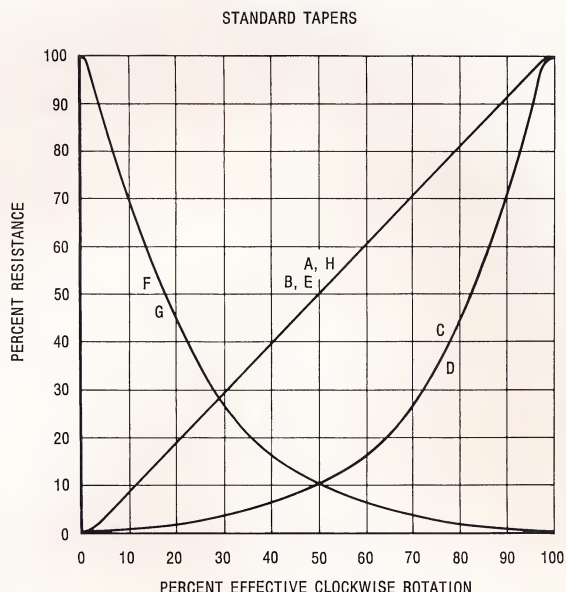
NOTES:

1. Taper and Resistance Code for 1st Section.
2. Taper and Resistance Code for 2nd Section.
3. Shaft length code is based on the number of 1/32" increments in the length from the mounting surface (FMS). Shaft lengths other than those listed are available on special order. Consult factory for dual concentric shafts.
4. Other anti-rotation lug options, resistance values, tapers and shaft end styles are available on special order. Consult factory for details.

MODEL 81/82

TAPER TYPE AND RESISTANCE TOLERANCE

- A** Cermet, Linear Taper, $\pm 10\%$ Tolerance.
- B** Conductive Plastic, Linear Taper, $\pm 20\%$ Tolerance.
- C** Cermet, CW Audio Taper, $\pm 10\%$ Tolerance.
- D** Conductive Plastic, CW Audio Taper, $\pm 20\%$ Tolerance.
- E** Conductive Plastic, Linear Taper, $\pm 10\%$ Tolerance.
- F** Cermet, CCW Audio Taper, $\pm 10\%$ Tolerance.
- G** Conductive Plastic, CCW Audio Taper, $\pm 20\%$ Tolerance.
- H** Cermet, Linear Taper, $\pm 5\%$ Tolerance.



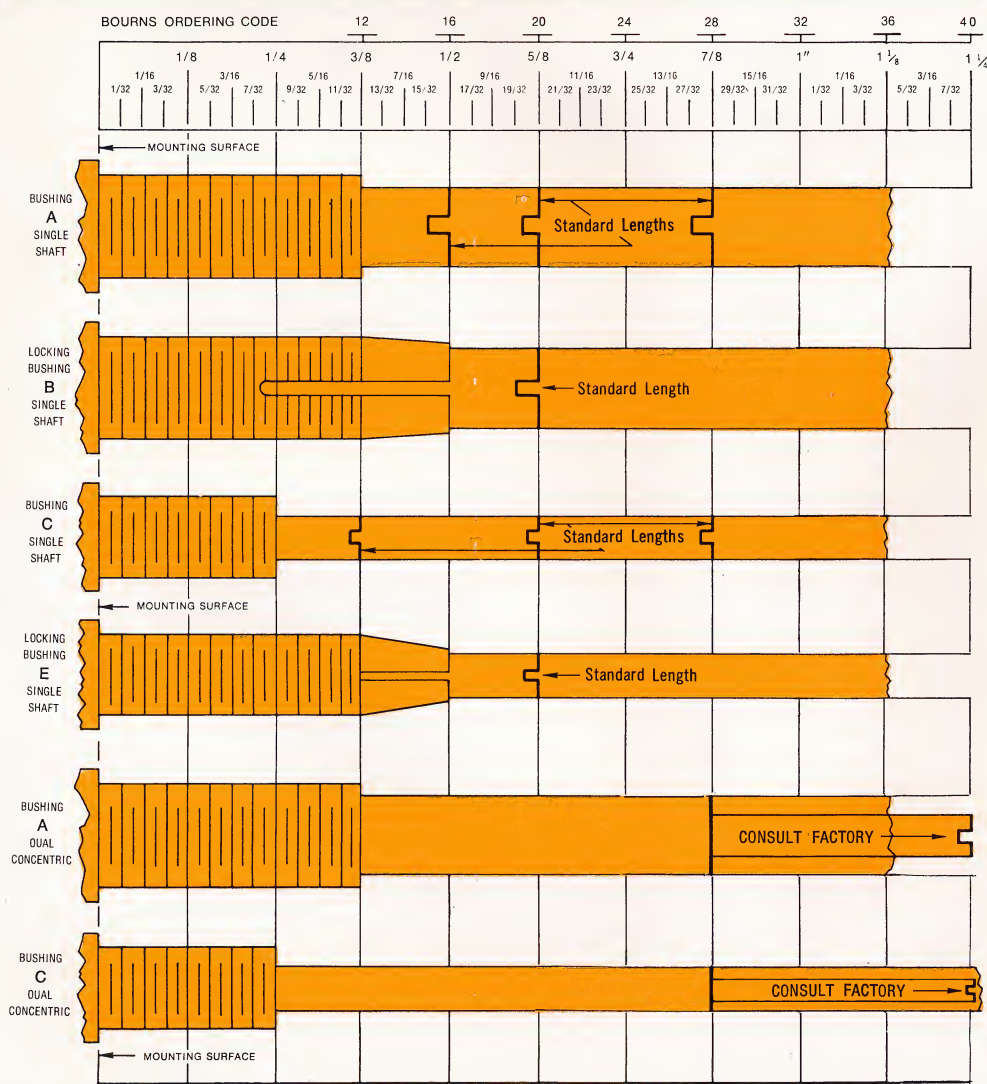
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HOW TO USE THE ORDERING INFORMATION SHEET

The Ordering information Sheet at the right is provided for your convenience in developing a Model 81/82 "prescription" for immediate quotation or ordering purposes. The form is designed so that each option/specification decision is made on a step-by-step basis, and can generally be indicated by a simple checkmark.

We suggest that you may wish to duplicate this form on an office copier and then make your entries on the duplicate copy. Better yet . . . contact your local Bourns representative and ask for a pad of these special Model 81/82 order information forms.

SHAFT LENGTH MEASURING CODES



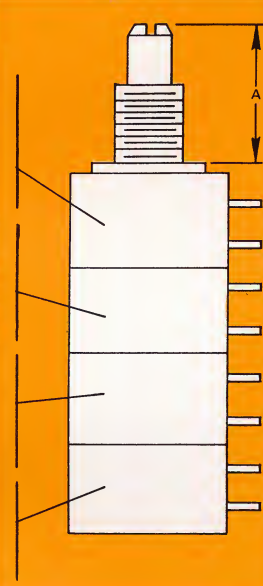
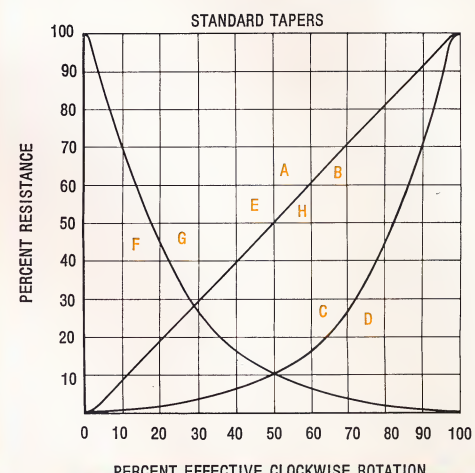
**MODEL 81/82****ORDERING INFORMATION SHEET**

CUSTOMER'S NAME _____

APPLICATION _____

ADDRESS _____

CUSTOMER p/n _____

Section No.	Resistance Value	Taper Designation			
1				Standard Resistance Values * 50 * 100 250 500 1K 2.5K 5K 10K 25K 50K 100K 250K 500K 1 Meg 2.5 Meg 5 Meg *Available in Cermet only	
2					
3					
4					
Terminals	☐ Solder Lugs ☐ PC Pins				TYPE, TAPER AND TOLERANCE A — Cermet, Linear, ± 10% B — C-P, Linear, ± 20% C — Cermet, CW Audio, ± 10% D — C-P, CW Audio, ± 20% E — C-P, Linear, ± 10% F — Cermet, CCW Audio, ± 10% G — C-P, CCW Audio, ± 20% H — Cermet, Linear, ± 5%
Locating Lug	Sgl. ☐ A .305R. (Std) 90° CW. Double ☐ B .305R. Sgl. ☐ C .305R. 270° CW. No ☐ D Lug Other ☐ (Specify) _____				
Pushing Type & Size	3/8" DIAMETER ☐ "A" Plain, 3/8" Long ☐ "B" Locking, 1/2" Long		1/4" DIAMETER ☐ "C" Plain, 1/4" Long ☐ "E" Locking, 1/2" Long		
Shaft Length	SINGLE 1/4" DIA. ☐ 1/2" (Std.) ☐ 5/8" (Std.) ☐ 7/8" (Std.) Specify _____		SINGLE — 1/8" DIA. ☐ 3/8" (Std.) ☐ 5/8" (Std.) ☐ 7/8" (Std.) Specify _____		
(Dim. A)	DUAL CONCENTRIC — 1/4" OUTER / 1/8" INNER		DUAL CONCENTRIC — 1/8" OUTER / 1/64" INNER		
Single Dual Concentric	☐ ____ Inner / ____ Outer Specify _____		☐ ____ Inner / ____ Outer Specify _____		
Shaft End	☐ Slotted (Std.) ☐ Other Specify: _____				

*Special Feature Notes _____

Purchase Order No. _____

R.F.Q. No. _____

Quantity _____

REQUESTED BY _____

Forward to your Bourns Authorized Distributor, Representative, District Office or to the Trimpot Products Division, 1200 Columbia Ave., Riverside, Calif. 92507 For Immediate Reply.

MODEL 81/82**MODULAR POTENTIOMETER****SINGLE OR MULTIPLE 5/8" SQUARE SECTIONS****BUSHING MOUNT****CERMET AND/OR CONDUCTIVE PLASTIC ELEMENTS****SPECIFICATIONS****CONDUCTIVE PLASTIC****CERMET****ELECTRICAL CHARACTERISTICS**

Standard Resistance Range (Tapers A, B, H & E).....	(Tapers C, D, F & G).....
Resistance Tolerance	
Independent Linearity	
Absolute Minimum Resistance	
Continuity	
Theoretical Electrical Travel	
Maximum Contact Resistance Variation (Tapers A, B, H & E).....	(Tapers C, D, F & G)
Resolution	
Dielectric Strength	
Sea Level	
70,000 Ft.	
Insulation Resistance (500 Volts DC)	
Power Rating at 70°C	
Single Section	
Multiple Section	

..... (B & E) 250 to 5,000,000 ohms	
..... (D & G) 1000 to 2,500,000 ohms	
..... ±20% standard (B, D & G tapers)	
..... ±10% available (E taper)	
..... (B & E tapers) ±5%	
..... 2 ohms	
..... Maintained for full mechanical angle	
..... 265° ±10°	
..... (B & E) ±1% or 3Ω, whichever is greater	
..... (D & G) ±2%	
..... Infinite	
..... MIL-R-23285	
..... 1000 Volts RMS	
..... 500 Volts RMS	
..... 1000 Megohms	
..... 1 watt	
..... .5 Watts/Section	

..... (A & H) 50 to 5,000,000 ohms	
..... (C & F) 1000 to 2,500,000 ohms	
..... ±10% Standard (A, C and F tapers)	
..... ±5% Available (H taper)	
..... (A & H tapers) ±5%	
..... 2 ohms	
..... Maintained for full mechanical angle	
..... 265° ±10°	
..... (A & H) ±1% or 3Ω, whichever is greater	
..... (C & F) ±2%	
..... Infinite	
..... MIL-R-23285	
..... 1000 Volts RMS	
..... 500 Volts RMS	
..... 1000 Megohms	
..... 2 Watts	
..... 1 Watt/Section	

ENVIRONMENTAL CHARACTERISTICS

Temperature Range	
Temperature Coefficient	
Over Temperature Range	
Vibration, 15 G's (Single Section)	
Maximum Wiper Shift	
Maximum Total Resistance Shift	
Shock, 30 G's (Single Section)	
Maximum Wiper Shift	
Maximum Total Resistance Shift	
Load Life	
Maximum Total Resistance Shift	
Rotational Life	
Maximum Total Resistance Shift	
Moisture Resistance	
Maximum Total Resistance Shift	

..... -65° to +125°C	
..... ±1000 ppm/°C	
..... MIL-R-23285	
..... 5% of total resistance	
..... ±2%	
..... MIL-R-23285	
..... 5% of total resistance	
..... ±2%	
..... 1000 Hrs.	
..... ±10%	
..... 100,000 Cycles	
..... 10 ohms or ±12%	
..... ±10%	

..... -65° to +150°C	
..... ±150 ppm/°C	
..... MIL-R-23285	
..... 5% of total resistance	
..... ±2%	
..... MIL-R-23285	
..... 5% of total resistance	
..... ±2%	
..... 1000 Hrs.	
..... ±5%	
..... 100,000 Cycles	
..... 10 ohms or ±10%	
..... ±5%	

MECHANICAL CHARACTERISTICS

Shaft Torque	
Single Section (A & B Bushing)	
Single Section (C & E Bushing)	
Dual Section (All Bushings)	
Triple Section (All Bushings)	
Quadruple Section (All Bushings)	
Shaft Locking Torque with Locknut @ 10 lb. in. (B & E Bushing)	
Stop Strength	
Total Mechanical Travel	
Weight (Single Section)	
Each Additional Section	
Terminals	
Markings	

..... .3 to 2.0 oz.-in.	
..... .3 to 2.0 oz.-in.	
..... .3 to 2.0 oz.-in.	
..... .3 to 2.0 oz.-in.	
..... .3 to 2.0 oz.-in.	
..... 20 oz.-in.	
..... 4 lbs.-in.	
..... 300° ±5°	
..... 21 Gms. max.	
..... 6 Gms. max.	
..... Printed circuit terminals or solder lugs	
..... Manufacturer's symbol, wiring diagram, date code, resistance, manufacturer's P/N	

..... .3 to 2.0 oz.-in.	
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